tube **154** may have a low coefficient of friction to reduce rotational resistance between the first tube **152** and the second tube **154**. For instance, in some embodiments, the outer surface of the first tube **152** and/or the inner surface of the second tube **154** may be coated with a lubricious coating providing a low coefficient of friction between the outer surface of the first tube **152** and the inner surface of the second tube **154** to aid in reducing resistance in rotational movement between the first tube **152** and the second tube **154**. Some suitable coating materials which may provide a low coefficient of friction include silicone or a fluoropolymer such as polytetrafluoroethylene (PTFE), ethylene tetrafluoroethylene (ETFE) or fluorinated ethylene propylene (FEP). In some instances, the outer surface of the first tube **152** and/or the inner surface of the second tube **154** may include nibs, bumps, ridges, grooves or other surface characteristics to reduce the contact area between the first and second tubes **152**, **154**. In other embodiments, the first tube **152** and the second tube **154** may be formed to have different cross-sectional shapes to reduce the contact area and/or number of contact points between the first and second tubes **152**, **154**. For example, the first tube **152** may have a square cross-sectional shape while the second tube **154** may have a circular cross-sectional shape. Thus, the first tube **152** would contact the inner surface of the second tube **154** at discrete contact points to reduce the contact area between the first and second tubes **152**, **154**.

The rotatable connection **150** may allow the tubular member **38** to rotate independent of rotation of the elongate wire **40** of the guide catheter **12**. Thus, during a medical procedure using the drainage catheter delivery system **10**, the elongate wire **40** may not become twisted or entangled with a guidewire extending through the lumen **22** of the tubular member **38** and along side of the elongate wire **40** of the guide catheter **12**.

Although the rotatable connections have been illustrated as being used to rotatably couple a tubular member to an elongate wire of a guide catheter of a drainage catheter delivery system, it can be appreciated that the disclosed rotatable connections may be incorporated into a variety of other medical devices. For instance, the disclosed rotatable connections may be incorporated into other medical catheter assemblies which may benefit from the ability of a first member to freely rotate relative to a second member during a medical procedure. In some instances, the rotatable connections may provide torque stress relief to a medical device. In some instances, the rotatable connections may allow an elongate tubular member to rotate relative to an elongate wire coupled to the elongate tubular member. Such rotatable connections may be used in a variety of catheters, such as catheters utilizing a pull wire extending along at least a portion of the length of the catheter. Such rotatable connections could also be incorporated in biopsy forceps, graspers, hemoclips, needles, and other medical instruments.

Those skilled in the art will recognize that the present invention may be manifested in a variety of forms other than the specific embodiments described and contemplated herein. Accordingly, departure in form and detail may be made without departing from the scope and spirit of the present invention as described in the appended claims.

What is claimed is:

1. A catheter assembly comprising:

a handle assembly;

a first tubular member coupled to the handle assembly and extending distally therefrom, the first tubular member including a lumen extending therethrough;

a second tubular member having a proximal end disposed within a distal portion of the lumen of the first tubular member; and

an elongate wire coupled to the second tubular member at a rotatable connection positioned within the lumen of the first tubular member, the elongate wire extending proximally from the proximal end of the second tubular member through a proximal portion of the lumen of the first tubular member;

wherein proximal actuation of the elongate wire relative to the first tubular member causes proximal movement of the second tubular member within the lumen of the first tubular member; and

wherein the rotatable connection allows the second tubular member to rotate independently of the elongate wire and freely revolve relative to the elongate wire;

wherein the rotatable connection comprises:

a discrete first tube having an inner diameter and an outer diameter, a distal portion of the first tube being fixedly attached to a proximal portion of the second tubular member; and

a discrete second tube having an inner diameter and an outer diameter, the second tube being disposed around a proximal portion of the first tube and rotatable relative to the first tube, the elongate wire being fixedly secured to the second tube;

wherein the first tube includes a flange extending radially outward from the outer diameter of the first tube at a proximal end of the first tube.

2. The catheter assembly of claim **1**, wherein the outer diameter of the first tube is less than the inner diameter of the second tube.

3. The catheter assembly of claim **1**, wherein the distal portion of the first tube extends into the second tubular member.

4. The catheter assembly of claim **1**, wherein the second tube is positioned between a proximal end of the second tubular member and the flange.

5. The catheter assembly of claim **1**, wherein the elongate wire extends through the lumen of the first tubular member to the handle assembly.

6. The catheter assembly of claim **5**, further comprising a guidewire extending through the second tubular member and along a distal portion of the elongate wire.

7. The catheter assembly of claim **6**, wherein the rotatable connection prevents the elongate wire from entangling with the guidewire.

8. The catheter assembly of claim **1**, wherein the rotatable connection allows the second tubular member to rotate independently of the first tubular member.

9. A drainage catheter delivery system comprising:

a handle assembly;

a push catheter extending distally from the handle assembly, the push catheter having a proximal end, a distal end and a lumen extending therethrough;

a guide catheter disposed in the lumen of the push catheter and having a distal portion extending distal of the distal end of the push catheter, the guide catheter including a tubular portion and an elongate wire coupled to the tubular portion at a rotatable connection at a proximal end of the tubular portion within the lumen of the push catheter, wherein proximal actuation of the elongate wire relative to the push catheter causes proximal movement of the tubular portion within the lumen of the push catheter; and

a drainage catheter surrounding a portion of the tubular portion of the guide catheter extending distal of the distal